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Assessing Patient Satisfaction with Kidney Stone Information Advice During Admission for Acute Renal Colic

S.A. Fenn, B.B. McGuire

Department of Urology, St. Vincent's University Hospital, Dublin, Ireland.

Abstract

Aims

This study focuses on the assessment of patient reported outcome measures (PROMs) following an educational intervention by urological service providers. In the modern era, social media and search engines are used as educational tools for both patients and healthcare providers alike. The aim of the study was to assess patient satisfaction with kidney stone information, through the viewing of a novel kidney stone educational video.

Methods

A prospective quality improvement study was conducted amongst patients admitted to our urology service with kidney stones undergoing emergency ureteroscopy using a patient satisfaction questionnaire.

Results

Patients reported increased satisfaction with overall information provided about kidney stone prevention after viewing the kidney stone educational video (4.8 vs 4 p=0.01). They also reported increased satisfaction with information provided about diet and lifestyle modification (4.5 vs3 p=0.02) (4.6 vs 3 p=0.02), information and demonstration on stent removal 4.8 vs 3.17 p=0.029), information on stent pain (4.7 vs 2.6 P=0.016) and availability of educational information and resources after viewing the video (4.8 vs 2.83 p=0.017). There were 17 patients in total included for statistical analysis.

Conclusion

Patient satisfaction with traditional patient education regarding kidney stones can be further strengthened through the use of a concise, informative, and readily accessible patient education video during and after point of care.

Introduction

Renal calculi are a common cause of emergency department presentations with an estimated lifetime prevalence of one in eleven.[1] Stone incidence can depend on geographic, climatic, ethnic, dietary and genetic factors.[2] The recurrence risk is mostly determined by the disease or disorder causing the stone formation,[2] but can be estimated at up to 50% within the first 5 years of initial stone episode.[3] Stone prevalence is increasing in incidence over the last two decades and is notably high in countries with high standards of living.[4, 5, 6] Obesity, diabetes, hypertension and metabolic syndrome are considered risk factors for stone formation, which can lead to hypertension, chronic kidney disease and end-stage renal disease.[2]

In adults with established kidney stone disease, the goal of preventative therapy is to halt the future recurrence of kidney stones as well as to restrict growth of existing kidney stones.[7] Preventative therapy generally consists of lifestyle changes (e.g. increased fluid intake, dietary modification, weight loss), drug therapy, or a combination of both.[3, 8] The approach to preventative therapy for an individual patient depends upon a comprehensive evaluation of patient's dietary and metabolic risk factors for stone formation, as well as the patient's stone composition, if known.[9]

Patient reported outcome measures such as satisfaction and understanding are a fundamental part of managing kidney stone disease. Using a health-related quality of life (HRQOL) assessment is paramount in the care of kidney stone patients given the recurrence and chronicity of the disease which may not correlate with the traditional indicator of stone free status post intervention.[10] Patients' treatment expectations and HRQOL are reforming areas of Urology, especially in the management of renal calculi. If we comprehend the issues of most importance to our patients, we can provide information and education that ensures the best understanding of treatment, realistic long-term expectations of disease management, minimising disappointment, and risk, and contributing to patients' HRQOL.[11] The overall goal of satisfaction is to demonstrate improvement in aspects of care delivery, which encompasses the aim of our educational video.[12]

Educating patients and families by the physician about kidney stone disease is a key part of disease prevention.[13] It is noted that the failure to offer stone-prevention advice could be a source of medicolegal liability.[14] Providing preventative education is a key part of kidney stone treatment and there are multiple modalities available for providing education this education. We hypothesised that including a patient-centred educational video about kidney stones would improve patient satisfaction with information provided during their stay, improving our overall service provision in the Department of Urology.

Methods

We carried out a parallel-group prospective quality improvement study of adults admitted with renal colic through the emergency department in St Vincent's University Hospital or through hospital transfer from secondary centres. Ethical approval was granted from the Clinical Research Ethics Committee in St Vincent's University Hospital. All patients gave informed consent for inclusion in the study and were issued a patient-information leaflet. Participants could withdraw their consent at any stage during the study. We excluded all patients who were unable to give informed consent, those admitted for elective ureteroscopy and those who were not able to speak English fluently. The study was not blinded due to the nature of the study design. Patients were recruited between February and June 2021.

Patients were prospectively randomised into two groups using Microsoft Excel with an allocation ratio of 1:1. Group 1 were randomly assigned to an 'exposed' patient cohort (viewing the educational video in addition to traditional patient information provision) and Group 2 were randomly assigned to a 'non-exposed' cohort (receiving traditional patient information provision alone). A subsequent analysis of patient satisfaction amongst both the 'exposed' and 'non-exposed' patient cohorts was carried out using a standardised patient satisfaction questionnaire. The kidney stone educational video was published on a freely accessible online media platform.

All patients completed a standardised patient satisfaction questionnaire with a total of 12 questions using a 5-point Likert scale: very satisfied (= 5), relatively satisfied (= 4), fairly satisfied (= 3), relatively dissatisfied (= 2) and very dissatisfied (= 1). The questionnaire solely explored respondents' satisfaction, not other parameters such as understanding. The questionnaire was reviewed by two consultant Urologists and by one content expert (a randomly selected kidney stone patient admitted for emergency ureteroscopy). All uncertainties and queries were amended in relation to the questionnaire. A test-retest was also performed for the questionnaire to ensure reliability. No alternative suitable validated kidney stone questionnaires were available to assess satisfaction with kidney stone education.

Parameters recorded for patients included height, weight, age, sex, number of presentations with kidney stones, past medical and surgical history, family history of kidney stones. We also asked respondents to report if they had ever researched kidney stones on the internet and if they had watched any video about kidney stones on the online video platform YouTube. All patients received standard kidney stone prevention education which included a bed side discussion with urological team. If the patient directed any specific questions at the team members, they were answered and patients who asked for additional information were provided with a British Association of Urological Surgery patient information leaflet on kidney stones. It should be noted that this leaflet was only provided to patients who sought additional information, not all participants.

The kidney stone educational video included a question and answer session with a leading Consultant Urologist from St Vincent's University Hospital. It included 20 questions and answers about kidney stone epidemiology, prevention, and management. It also included a demonstration of ureteric stent removal and after care advice. The video was furnished to include subtitles and easily accessible language. The video was only available in English on the media platform YouTube. Access to the video was provided to all patients after participation in the study. All information in video was in keeping guidelines from British Association of Urological Surgery (BAUS) and European Society of Urology (ESU). Patients were shown the video on portable tablet device at the bedside.

Collected data was tabulated using Microsoft Excel (Microsoft Office 2013) to facilitate interpretation. Results were imported to IBM SPSS Statistics 23 (IBM Corp, Armonk, NY) for analysis. A non-parametric Mann Whitney test was used to assess significance between the groups, as datasets were not normally distributed following an Anderson-Darling test. A p-value of <0.05 was considered to be statistically significant.

Results

20 patients were randomised as outlined above Fig.1. All patients received standard treatment by the admitting urological team. Three patients (two from intervention group and one from control group) failed to complete questionnaires and were excluded from analysis. 17 patients were included in the final analysis. Questionnaire analysis is shown in Fig 2.

We compared the intervention group (video) with the control group (no video) across 11 responses to the questionnaire. No respondents knew their specific stone type and so we discounted that question from our analysis.

Respondents who viewed the kidney stone video reported increased satisfaction with overall hospital stay (4.8 vs 4 p=0.01), overall information provided about kidney stone prevention (4.9 vs 3.71 p=0.008), information about diet modification (4.5 vs3 p=0.02), lifestyle modification (4.6 vs 3 p=0.02), information and demonstration on stent removal (4.8 vs 3.17 p=0.029), information on stent pain relief (4.7 vs 2.6 P=0.016) and availability of educational information and resources (4.8 vs 2.83 p=0.017). There was no statistically significant difference from respondents in relation to satisfaction with information about blood marker testing, reason for stent insertion and patient follow-up. All patients who viewed the educational video responded that it was helpful.

The secondary outcome was whether patients had previously researched kidney stones on the internet. 11 out of 17 (64.7%) respondents had researched kidney stones online with five having watched YouTube videos about kidney stones previously.

Patient Satisfaction with Aspects of Stone Care Following Educational Video: (Mean Score From 1-5)

	Patients that Viewed Educational Video	Patients that Did Not View Educational Video	P-Value	95% Confidence Interval
Satisfaction With Overall Hospital Stay	4.80	4.00	**0.01***	(-1, -0.001)
Satisfaction With Overall Information Provided About Kidney Stone Prevention	4.90	3.71	**0.008***	(-2, 0.001)
Satisfaction with Information Given About:				
Blood Markers	3.67	3	0.584	(-3, 1)
Diet Modification	4.50	3.00	**0.02***	(-3, 0.001)
Lifestyle Modification	4.60	3.14	**0.014***	(-2, 0.001)
Reason for Stent Insertion	4.80	4.14	0.095	(-2, -0.001)
Information and Demonstration of Stent Removal	4.80	3.17	**0.029***	(-3, -0.001)
Stent-Associated Pain Relief Options	4.70	2.60	**0.016***	(-3, -0.001)
Post-Operative Pain Relief Options	4.70	3.83	0.285	(-2, 0.001)
Availability of Educational Resources/Information	4.80	2.83	**0.017***	(-4, -0.001)
Plan for Patient Follow Up	4.90	3.33	0.064	(-3, 0.001)

Fig. 1: *Questionnaire Results*

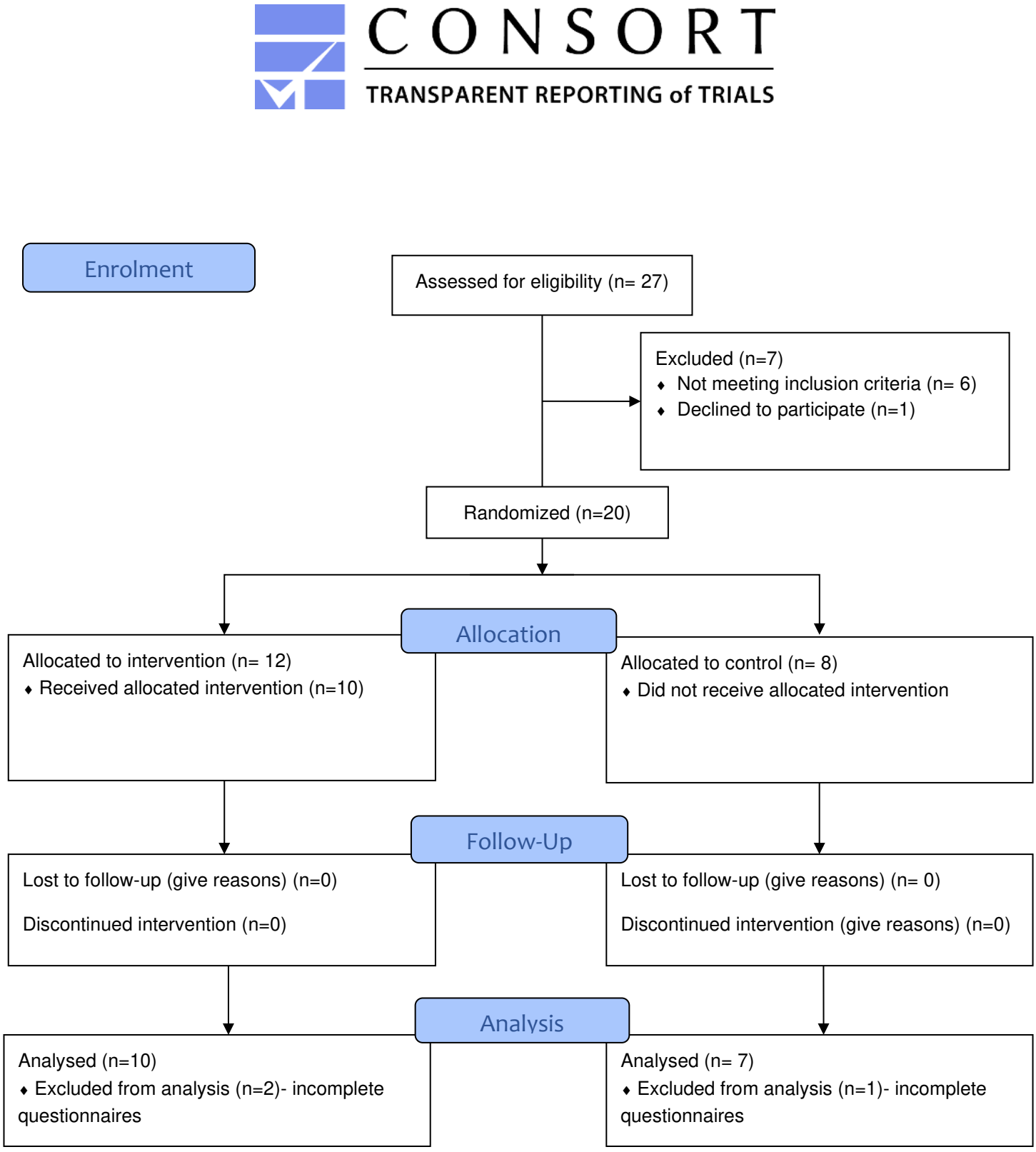

Fig. 2: *Consort 2010 flow diagram*

Discussion

Patient satisfaction is a subjective patient reported outcome measure, making its quantification and standardisation of patients' experiences difficult. However, it is a rudimentary part of recording patient reported outcomes. Therefore, we incorporated it into our study using a questionnaire. Patients reported increased overall satisfaction with kidney stone prevention advice after viewing the educational video, in keeping with the overall objective of the study.

Patient education is a principal tool for reducing recurrence in stone formers. There are multiple methods available for deliverance of education, but the use of social media and internet is coming to the forefront. There are a large number of educational videos available, but none designed by Irish Consultant Urologists that are freely available online. There is value for patients in viewing an educational videos that was prepared by the institution in which they are attending, recognising their clinician, and further increasing their doctor-patient relationship.

Giving patients the opportunity to view a specific video produced by their clinician or hospital institution is advantageous as it prevents patients accessing information that is not in keeping with evidence-based medicine through an open direction to research their illness online. We recommended additional internet sites for further reference at the end of our video that are evidence based. All patients who viewed the educational video determined that it was helpful. The video was available at point of care and after care as patients reported wanting to share video with family members and carers, in the hope of improving their understanding and overall outcomes.

There is variability in standard care education given to kidney stone patients depending on clinician availability, patient engagement and access to resources. The use of the video tool is a way of streamlining this service for all patients, giving an opportunity to view the video as an intervention that is free and time saving to clinicians. We furnished the video with subtitles and easily accessible language. However, a number of patients did not speak English fluently and translations of the video would be beneficial to this group. It is plausible that creating additional videos for other urology treatments would be useful to our patients.

There are limitations of this study. This was an initial pilot study to assess the feasibility of introducing a patient education video to patients undergoing emergency ureteroscopy. The main limitation is the number of patients included in both arms of the study (17 in total). This study was not registered as a randomised control trial. It could not be blinded as there was only one data collector available onsite. There are some unavoidable biases in the design of a study of this nature. Satisfaction in an inherently subjective experience. It was not possible to control for all of the other biopsychosocial factor that interplay with a patient's experience of satisfaction, making it impossible to get a completely standardised study group.

Patient satisfaction with traditional patient education regarding kidney stones can be further strengthened through the use of a concise, informative, and readily accessible patient education video made by Urology Consultants and team, during and after point of care. Patients are using the internet to research kidney stone disease and providing an educational video has benefit in improving access and deliverance of evidence-based education.

Declaration of Conflicts of Interest:
The authors have no conflicts of interest to declare.

Informed Consent:
All patients gave informed consent for participation in this study.

Corresponding Author:
Dr Sarah Fenn,
St. Vincent's University Hospital,
Dublin.
E-mail: s.fenn2@nuigalway.ie

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